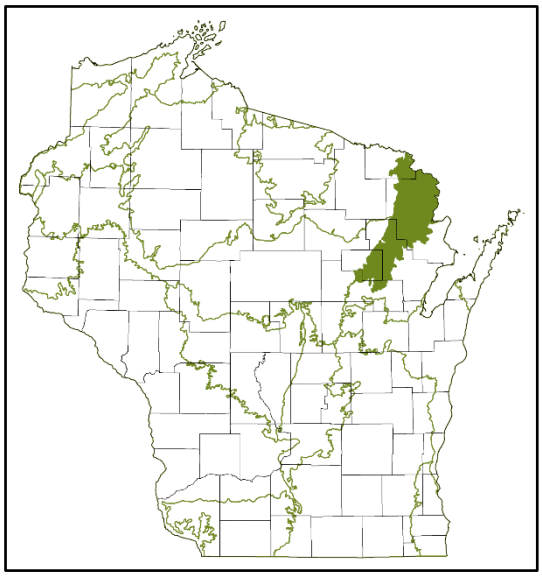
Northeast Sands

Ecological Characteristics and Management Opportunities

Overview

This summary of the ecological characteristics and management opportunities of the Northeast Sands is substantially taken from the Northeast Sands chapter of the Ecological Landscapes of Wisconsin book (WDNR 2015).



The Northeast Sands Ecological Landscape (NES EL) is located in northeastern Wisconsin and includes portions of Florence, Marinette, Oconto, Menominee, and Shawano counties. It encompasses 1,542 square miles (987,176 acres), which represents 2.8% of Wisconsin's total area.

Precambrian bedrock underlies almost the entire NES EL. Waterfalls, most of which are associated with this ancient bedrock, are prominent in the northern part of the NES. Glacial outwash sand and gravel deposited as ice melted and retreated during the Wisconsin glaciation covers much of the NES, producing a nearly level to rolling topography. The dominant soil is a very dry loamy sand.

Water features in the NES include the Menominee, Peshtigo, Pike, Pine, Oconto, South Branch of the Oconto, and Wolf rivers. The Pine-Popple and Pike rivers are three of only five state-designated Wild Rivers in Wisconsin, and the Wolf River is a National Wild and Scenic River. There are many high-quality coldwater streams in the NES, prized by trout anglers, as well as scattered lakes and several large impoundments on rivers such as the Menominee and Peshtigo.

Historically, vegetation in the NES was a mix of northern hardwood forests, jack pine-northern pin (scrub) oak forest and barrens, and coniferous forested wetlands. Periodic fires were important in maintaining an open condition in barrens and dry forest types. Pines were the most dominant group of tree species historically, with white pine highest in importance, followed by red pine and jack pine. Hemlock also was a species of high importance. Forests are dominant in the current landcover of the NES, more so than historically, covering almost 77% of the landscape. The structure and species composition of these forests have changed significantly from what they were historically. Conifers and northern hardwood species such as beech have greatly declined in abundance. Aspen is now the most abundant cover type. Pine barrens is much reduced from its historic extent, having succeeded to dense forests of pine, oak, and aspen in the absence of fire or been replaced by red pine plantations. Northern hardwood forests are still common but are now dominated by sugar maple, with species like basswood and white ash as common associates. Many forest stands are young and even-aged, lacking structural complexity.

Outstanding Ecological Opportunities

The NES EL offers the following outstanding ecological management opportunities:

Extensive forests – Three-quarters of the NES EL is forested, the highest percentage of forested land of any EL. These extensive forests play a significant role in maintaining high water quality and viable populations of many native plants and animals, and present opportunities to manage at larger scales for connectivity and to restore habitat types, successional stages, and structural conditions that are currently uncommon or declining.

High-biodiversity-value forest communities – Forest types that are especially important and well represented in the NES compared to other parts of the state include: dry (jack pine and scrub oak) and dry-mesic forests (white pine-red pine); mesic forests of beech, sugar maple, and hemlock; and wet-mesic forests dominated by white cedar, which harbor high numbers of rare plants and animals and are vulnerable to hydrologic disruption and excessive white-tailed deer herbivory.

Barrens and bracken grasslands – These communities, once much more common in this landscape, provide critical breeding habitat for many grassland birds as well as a number of herps, mammals, and insects. The NES is one of only three ELs in the state where management for species associated with the globally imperiled pine barrens community can be accomplished effectively, and is the EL with the best opportunity to manage for bracken grasslands.

River/stream corridors and other aquatic and wetland habitats – Several river corridors, including those of the Peshtigo, Oconto, Pine, and Pike rivers, offer opportunity to protect high-biodiversity-value aquatic habitats. Some of these corridors are bordered by rock outcrops and stands of conifers and/or relatively old forest that may support species rare elsewhere in the EL. Twenty percent of the NES EL is wetlands, the sixth highest percentage of all ELs. Wetlands such as bogs, fens, marshes, sedge meadows, and shrub swamps provide high ecological value. Undeveloped ponds and lakes, including those with unusual properties such as marl lakes, also constitute important opportunities for aquatic species.

Bedrock features – Exposures of bedrock are locally common and prominent in the NES. These features, which include outcrops, cliffs, glades, and talus slopes, support rare plants and animals, including some bedrock specialists.

Natural Communities

A natural community is an assemblage of interacting plants, animals, other organisms, and the physical environment in which they occur that is shaped primarily by natural processes, and may be repeated across a landscape where similar environmental conditions prevail. The properties in the NES EL plan offer opportunity to manage for the following 'major' or 'important' natural communities.

Major*	**Important***
Aspen-Birch	Alder Thicket
Bracken Grassland	Bedrock Glade
Coldwater Streams	Black Spruce Swamp
Conifer Plantation	Emergent Marsh
Coolwater Streams	Northern Hardwood Swamp
Northern Dry Forest	Northern Mesic Forest

Major*	Important*
Northern Dry-mesic Forest Northern Wet-mesic Forest Pine Barrens	Northern Sedge Meadow Northern Tamarack Swamp Northern Wet Forest Open Bog Poor Fen Lakes Springs Submergent Marsh

***Major**: the natural community can be sustained in the EL, either because many significant occurrences of the natural community have been recorded in that landscape or major restoration activities are likely to be successful in maintaining the community's composition, structure, and ecological function over a long period of time.

Important: although the natural community does not occur extensively or commonly in the EL, one to several occurrences are present and are important in sustaining the community in the state. In some cases, important opportunities may exist because the natural community may be restricted to just one or a few ELs within the state and should be considered for management there because of limited geographical distribution and a lack of better opportunities elsewhere.

Significant Wildlife Resources

The NES provides habitat for many rare species of plants, reptiles and amphibians, mammals, fish, birds, and invertebrates. The NES is one of only three ELs in the state where management for species dependent on pine barrens and bracken grassland can be effectively accomplished. The state endangered Northern blue butterfly is found only in northeastern Wisconsin in association with its larval host plant, dwarf bilberry, a rare barrens species. The NES contains one of only four counties in Wisconsin where the federally endangered Kirtland's warbler, one of North America's rarest birds, has been documented, and one of only three counties in the state where the bird is confirmed as breeding.

Conifer swamps dominated by white cedar, which support many rare plants and animals, are relatively common in the NES, and some of the state's largest examples are found here. Significant blocks of working forest support forest wildlife species that require extensive forest cover, such as many species of breeding neotropical migrant birds and forest raptors.

Cold and coolwater streams are abundant in the NES, providing habitat for native brook trout and rare dragonflies. Medium-sized warmwater rivers, including the Menominee, Peshtigo, and Pike, Pine, and Oconto provide habitat for rare mussels and aquatic invertebrates.

The extensive forests and high-quality waters of the NES EL provide habitat for diverse and abundant populations of game species. White-tailed deer, bear, ruffed grouse, woodcock, waterfowl, and furbearers such as beaver, otter, fisher, and bobcat are common. Cold and coolwater streams support brook trout, and warmwater rivers and impoundments contain populations of game fish such as northern pike, walleye, smallmouth and largemouth bass, bluegill, yellow perch, black crappie, and other panfish.